

FUNDAMENTALS OF TRIAL ADVOCACY COURSE

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Phoenix, Arizona



DUI BREATH ANALYSIS ISSUES

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Distributed by:

ARIZONA PROSECUTING ATTORNEYS' ADVISORY COUNCIL

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DUI Breath Analysis

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Breath Alcohol Analysis

Direct Oxidation

1927 – Emil Bogen: The Diagnosis of
Drunkenness; California and Western
Medicine Vol XXVI, No 6

Used Football to capture sample

Won \$150 research prize
(\$1866 by today's standards)

Breath Alcohol Analysis

Direct Oxidation

1938 – Rolla Harger

Drunkometer

Used colorimetric
analysis

Potassium chromate, silver
nitrate, and sulfuric acid
Turns from yellow to green
Office compares color change
to a chart

Breath Alcohol Analysis

Direct Oxidation

1954 – Robert F.
Borkenstein

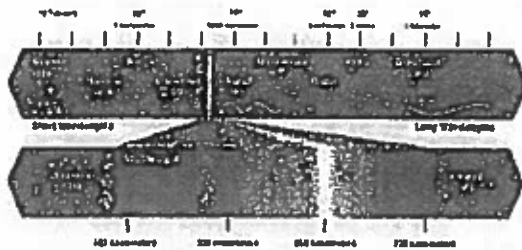
The Breathalyzer

Used colorimetric analysis

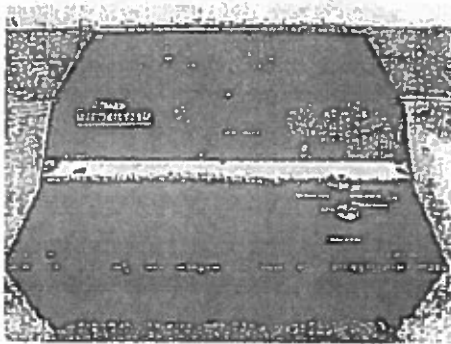
Potassium dichromate, silver
nitrate, and sulfuric acid
Light meter measured
change in color

Breath Alcohol Analysis

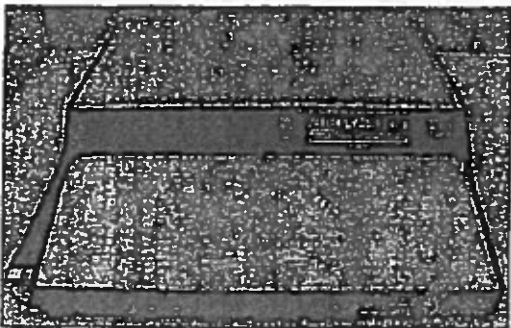
Infrared Spectrophotometry



Intoxilyzer 4011

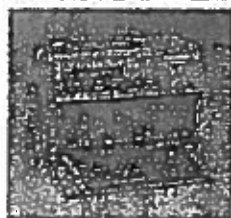


Intoxilyzer 5000



Intoxilyzer 8000

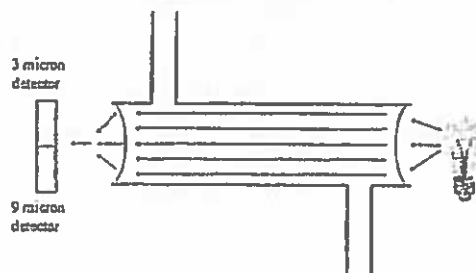
INTOXILYZER®

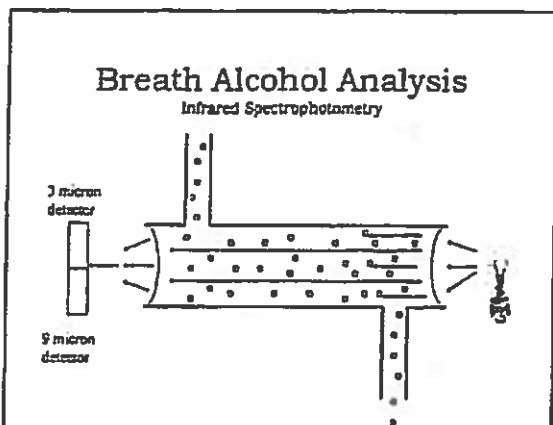


8000

Breath Alcohol Analysis

Infrared Spectrophotometry





Breath Alcohol Analysis

Henry's Law

In a closed system, the concentration of a volatile substance above a fluid is proportional to the concentration of that substance in the fluid at equilibrium

Blood to Breath Ratio

USDOT mandates instruments use 2100:1
1972 ad hoc committee

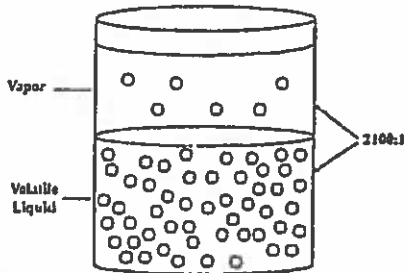
Amount of alcohol in 2.1 l. of lung air is equal to amount of alcohol in 1 ml of blood

Average partition ratio is 2300:1

Large study (21582 drinkers) found 2440:1

A.R. Gainsford, A large scale study of the relationship between blood and breath alcohol concentration in New Zealand drinking drivers, J Forensic Sci. 51, 173-178, 2006

The diagram shows a closed cylinder representing a system at equilibrium. The top portion of the cylinder is labeled 'Vapor' and contains a few small circles. The bottom portion is labeled 'Volatile Liquid' and is densely packed with small circles. A bracket on the right side of the cylinder spans both the vapor and liquid regions and is labeled with the number '2100.1', representing the total number of particles in the system.



Breath Alcohol Analysis

Quality Assurance

Deprivation period

At least a 15 minute period immediately prior to a duplicate breath test during which period the subject has not ingested any alcoholic beverages or other fluids, eaten, vomited, smoked, or placed any foreign objects in the mouth.

At least a 15-minute period immediately prior to a duplicate breath test during which period the subject has not ingested any alcoholic beverages or other fluids, eaten, vomited, smoked, or placed any foreign objects in the mouth.

[illegible]

Breath Alcohol Analysis

Quality Assurance

Approved
for use in the U.S.A.
and Canada
for the purpose of determining
the blood alcohol content
of a person's breath

1. ☐ 2. ☐ 3. ☐ 4. ☐ 5. ☐ 6. ☐ 7. ☐ 8. ☐ 9. ☐ 10. ☐ 11. ☐ 12. ☐ 13. ☐ 14. ☐ 15. ☐ 16. ☐ 17. ☐ 18. ☐ 19. ☐ 20. ☐ 21. ☐ 22. ☐ 23. ☐ 24. ☐ 25. ☐ 26. ☐ 27. ☐ 28. ☐ 29. ☐ 30. ☐ 31. ☐ 32. ☐ 33. ☐ 34. ☐ 35. ☐ 36. ☐ 37. ☐ 38. ☐ 39. ☐ 40. ☐ 41. ☐ 42. ☐ 43. ☐ 44. ☐ 45. ☐ 46. ☐ 47. ☐ 48. ☐ 49. ☐ 50. ☐ 51. ☐ 52. ☐ 53. ☐ 54. ☐ 55. ☐ 56. ☐ 57. ☐ 58. ☐ 59. ☐ 60. ☐ 61. ☐ 62. ☐ 63. ☐ 64. ☐ 65. ☐ 66. ☐ 67. ☐ 68. ☐ 69. ☐ 70. ☐ 71. ☐ 72. ☐ 73. ☐ 74. ☐ 75. ☐ 76. ☐ 77. ☐ 78. ☐ 79. ☐ 80. ☐ 81. ☐ 82. ☐ 83. ☐ 84. ☐ 85. ☐ 86. ☐ 87. ☐ 88. ☐ 89. ☐ 90. ☐ 91. ☐ 92. ☐ 93. ☐ 94. ☐ 95. ☐ 96. ☐ 97. ☐ 98. ☐ 99. ☐ 100. ☐ 101. ☐ 102. ☐ 103. ☐ 104. ☐ 105. ☐ 106. ☐ 107. ☐ 108. ☐ 109. ☐ 110. ☐ 111. ☐ 112. ☐ 113. ☐ 114. ☐ 115. ☐ 116. ☐ 117. ☐ 118. ☐ 119. ☐ 120. ☐ 121. ☐ 122. ☐ 123. ☐ 124. ☐ 125. ☐ 126. ☐ 127. ☐ 128. ☐ 129. ☐ 130. ☐ 131. ☐ 132. ☐ 133. ☐ 134. ☐ 135. ☐ 136. ☐ 137. ☐ 138. ☐ 139. ☐ 140. ☐ 141. ☐ 142. ☐ 143. ☐ 144. ☐ 145. ☐ 146. ☐ 147. ☐ 148. ☐ 149. ☐ 150. ☐ 151. ☐ 152. ☐ 153. ☐ 154. ☐ 155. ☐ 156. ☐ 157. ☐ 158. ☐ 159. ☐ 160. ☐ 161. ☐ 162. ☐ 163. ☐ 164. ☐ 165. ☐ 166. ☐ 167. ☐ 168. ☐ 169. ☐ 170. ☐ 171. ☐ 172. ☐ 173. ☐ 174. ☐ 175. ☐ 176. ☐ 177. ☐ 178. ☐ 179. ☐ 180. ☐ 181. ☐ 182. ☐ 183. ☐ 184. ☐ 185. ☐ 186. ☐ 187. ☐ 188. ☐ 189. ☐ 190. ☐ 191. ☐ 192. ☐ 193. ☐ 194. ☐ 195. ☐ 196. ☐ 197. ☐ 198. ☐ 199. ☐ 200. ☐ 201. ☐ 202. ☐ 203. ☐ 204. ☐ 205. ☐ 206. ☐ 207. ☐ 208. ☐ 209. ☐ 210. ☐ 211. ☐ 212. ☐ 213. ☐ 214. ☐ 215. ☐ 216. ☐ 217. ☐ 218. ☐ 219. ☐ 220. ☐ 221. ☐ 222. ☐ 223. ☐ 224. ☐ 225. ☐ 226. ☐ 227. ☐ 228. ☐ 229. ☐ 230. ☐ 231. ☐ 232. ☐ 233. ☐ 234. ☐ 235. ☐ 236. ☐ 237. ☐ 238. ☐ 239. ☐ 240. ☐ 241. ☐ 242. ☐ 243. ☐ 244. ☐ 245. ☐ 246. ☐ 247. ☐ 248. ☐ 249. ☐ 250. ☐ 251. ☐ 252. ☐ 253. ☐ 254. ☐ 255. ☐ 256. ☐ 257. ☐ 258. ☐ 259. ☐ 260. ☐ 261. ☐ 262. ☐ 263. ☐ 264. ☐ 265. ☐ 266. ☐ 267. ☐ 268. ☐ 269. ☐ 270. ☐ 271. ☐ 272. ☐ 273. ☐ 274. ☐ 275. ☐ 276. ☐ 277. ☐ 278. ☐ 279. ☐ 280. ☐ 281. ☐ 282. ☐ 283. ☐ 284. ☐ 285. ☐ 286. ☐ 287. ☐ 288. ☐ 289. ☐ 290. ☐ 291. ☐ 292. ☐ 293. ☐ 294. ☐ 295. ☐ 296. ☐ 297. ☐ 298. ☐ 299. ☐ 300. ☐ 301. ☐ 302. ☐ 303. ☐ 304. ☐ 305. ☐ 306. ☐ 307. ☐ 308. ☐ 309. ☐ 310. ☐ 311. ☐ 312. ☐ 313. ☐ 314. ☐ 315. ☐ 316. ☐ 317. ☐ 318. ☐ 319. ☐ 320. ☐ 321. ☐ 322. ☐ 323. ☐ 324. ☐ 325. ☐ 326. ☐ 327. ☐ 328. ☐ 329. ☐ 330. ☐ 331. ☐ 332. ☐ 333. ☐ 334. ☐ 335. ☐ 336. ☐ 337. ☐ 338. ☐ 339. ☐ 340. ☐ 341. ☐ 342. ☐ 343. ☐ 344. ☐ 345. ☐ 346. ☐ 347. ☐ 348. ☐ 349. ☐ 350. ☐ 351. ☐ 352. ☐ 353. ☐ 354. ☐ 355. ☐ 356. ☐ 357. ☐ 358. ☐ 359. ☐ 360. ☐ 361. ☐ 362. ☐ 363. ☐ 364. ☐ 365. ☐ 366. ☐ 367. ☐ 368. ☐ 369. ☐ 370. ☐ 371. ☐ 372. ☐ 373. ☐ 374. ☐ 375. ☐ 376. ☐ 377.

Quality Assurance

(Checks all internal systems of instrument)

[illegible]

Quality Assurance

Quality Assurance

[illegible]

Breath Alcohol Analysis

Quality Assurance

Quality Assurance Specialist

31-day Calibration Check

90-day Standard Quality Assurance Procedure

Breath Alcohol Analysis

Exception Messages

Calibration Check Out of Tolerance

Outside 0.090 – 0.110

Instrument will be locked
Display "Contact QAS Cal Check Tolerance"

QAS will need to perform successful 31-day
calibration check to unlock

Breath Alcohol Analysis

Exception Messages

Sequence Aborted

Pushed Start Test button at wrong time

Improper Sample

Blew at wrong time

Inhibited RFI

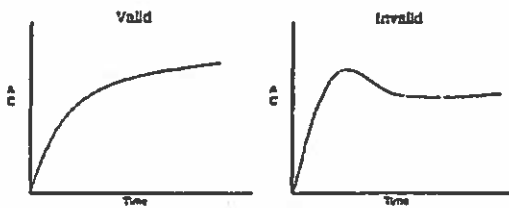
Radio Frequency detected

Breath Alcohol Analysis

Exception Messages

Invalid Sample

Mouth alcohol possible



Breath Alcohol Analysis

Exception Messages

Ambient Failure

Detectable level of alcohol in room air

Range Exceeded

Level higher than 0.600

Deficient Sample

Minimum sample criteria not met

Breath Alcohol Analysis

Lockouts

Instrument will not allow a subject test to be performed if:

The 31-day Calibration check is past due

The dry gas standard is expired

The dry gas standard pressure is too low

Concurrent calibration check failed

QAS must unlock instrument by performing appropriate QA measures

Breath Alcohol Analysis

Quality Assurance

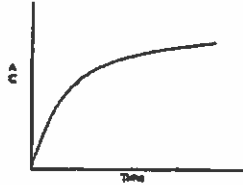
Minimum Sample Criteria

Flow rate - 0.15 L/sec

Time - 1 sec

Volume - 1.1 L

Level Slope



Breath Alcohol Admissibility

Two methods of admitting breath tests

Statutory Method

ARS § 28-1323

Rules of Evidence Method

Expert Witness, *Daubert*/Rule 702

Breath Alcohol Admissibility

Statutory Method

28-1323(A)

- 1) DHS/DPS Approved Device
- 2) Certified Operator
- 3) Duplicate Tests (includes deprivation period)
- 4) DHS/DPS Approved Checklist
- 5) Device in Proper Operating Condition

28-1323(B)

These are the only requirements for admissibility

DHS/DPS* Approved Device

- Testimony of Operator (not in statute)
- Judicial Notice
 - *Evidence*, Rule 201
 - *State v. Zaragoza*, 21 Ariz.App. 596 (App. 1974)
- Properly authenticated certification from DHS/DPS
- DHS/DPS Regulations (not in statute)
 - *Evidence*, Rule 902 (Self Authenticating Document)
 - Copy at <http://law01/index.asp?click=codes#codes>

Certified Operator

- Testimony of Officer
- May Admit Copy of Card – not required
 - Certified Record of Officer's Certification from DHS/DPS
 - *Evidence*, Rule 902 (Self Authenticating Document)

Breath Test – Statutory Method (Duplicate Tests)

What the Statute Says:

- Duplicate (2) Tests
- Tests Within .02 of Each Other

In the Regulations:

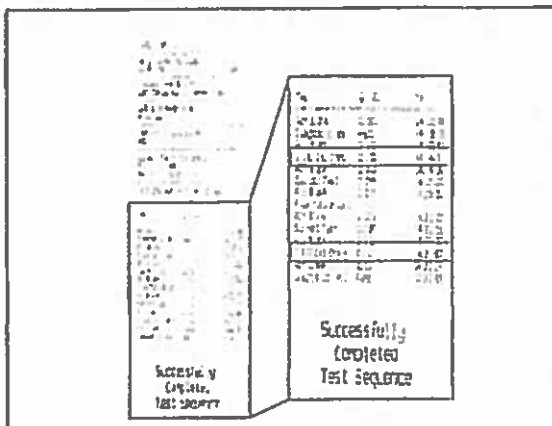
- 15 Minute Deprivation Period
 - Mouth Alcohol – discussed in depth later
- Tests Not Less Than 5 nor More Than 10 Minutes Apart

DHS/DPS Approved Checklist

- Testimony of Operator (in statute)
- Checklist Admissible as Public Record
 - *Evidence, Rule 803(8)*
- Do not have to admit copy of checklist, but need testimony it is DHS/DPS approved & was followed
- Lack of written checklist goes to weight not admissibility

Device In Proper Operating Condition

- Strip Chart Calibrations
- Calibration Records/SQAPs
 - Statute only requires periodic maintenance – not specific type
 - Admissible through QAS or as public record
- Testimony of Expert (criminalist)



Breath Alcohol Admissibility

Rules of Evidence Method

Expert Witness, Daubert

Use when statutory foundation can't be shown

When want to use an expert

Also used to admit blood or urine test results

Majority of Time Will Use Statutory Method for
Breath Tests

State's Forensic Scientist rarely called in
breath test cases

Blood vs. Breath

To be certified by DPS, breath
instrument must be capable of
measuring alcohol to within $\pm 5\%$

CMI, Inc. states 3%

Lack of Foundation

Person objecting must indicate what is
lacking. *Packard v. Reidhead*, 22 Ariz.App.
420 (1974).

Dealing with Experts

Ask about studies & what they entailed

Learn the material & understand it

Is that reasonable?

Questions?

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